

1 UNITED STATES OF AMERICA
2 ENVIRONMENTAL PROTECTION AGENCY
3
4 EPA SUPERFUND 5 SUPERFUND DIVISION
5 PROPOSED CLEANUP PLAN FOR TITTABAWASSEE
6 RIVER SEGMENTS 6 AND 7

7 _____

8
9
10 Public Meeting of the EPA Region 5 Superfund Division,
11 Held at 8207 Shields Drive,
12 Saginaw, Michigan,
13 Commencing at 6:00 p.m.,
14 Monday, October 22, 2018,
15 Before Kathy M. Baase, CSR-3285.

16
17 PRESENT:

18 DIANE RUSSELL, EPA Community Involvement Coordinator
19 Mary LOGAN, Remedial Project Manager
20 DARREN DONNELLY, EPA
21 JOE VICTRE, MDEQ

22
23
24
25

1 Saginaw, Michigan

2 Monday, October 22, 2018

3 6:00 p.m.

4

5 MS. RUSSELL: We're going to be getting
6 started. We have to be respectful of the library's
7 time tonight, they are going to have us out of here at
8 7:30 so I want to make sure that we have enough time
9 tonight to get through the presentation, get through
10 all of your questions and get to the comment period.

11 So, if all of you would grab just real
12 quickly, I wanted to draw your attention to the agenda
13 that you picked up at the table. The purpose of
14 tonight's meeting is to go over EPA's proposed plan
15 for Segments what we call 6 and 7, and there's a map
16 of that on the front of the fact sheet that you may
17 have received in the mail or picked up at the table.
18 So that's the area that we're going to be talking
19 about and on the agenda here we're going to go over,
20 after a brief introduction of some folks here, then
21 going to our proposed clean-up plan for those areas.
22 And then once we do that, we're going to go ahead and
23 open for questions and answers. We do have a court
24 reporter here tonight, so as you state your question,
25 just to help for the record, if you would like to --

1 if you could just state your name and spell it for the
2 court reporter, and I will remind you throughout the
3 course of time that we'll need to have that done.

4 Once we do questions and answers, we're
5 going to take just a brief break just so we can re-set
6 up and I can collect cards if folks wanted to provide
7 public comments, and then we'll go ahead and start
8 recording those for the record after that break. So
9 we'll follow this agenda in that order and hopefully
10 we'll be able to address all your questions and give
11 you all the information that you were seeking this
12 evening tonight.

13 So first just a few brief introductions. My
14 name is Diane Russell. I am an EPA community
15 involvement coordinator and I work in the Flint,
16 Michigan office. I also have Darren Donnelly, who was
17 introducing you on the way in today. And he also
18 works out of the Flint office doing community
19 engagements, not only here but across Michigan. I
20 have Mary Logan here who is going to be the project
21 manager and she's going to be presenting information
22 for you tonight. And I also have Joe Victre, who is
23 the state -- Michigan Department of Environmental
24 Quality Project manager, and these folks also --
25 again, we do have to be out of here by 7:30, but if

1 we -- if you have individual questions for them, if we
2 have time afterwards we can do that or if we have
3 follow-up information, if you like to contact or give
4 them a call.

5 So with that I'm just going to go ahead and
6 pass it over to Mary so she can get started talking
7 about what we're going to be proposing for Segment 6
8 and 7.

9 MS. LOGAN: Thank you, Diane. Hi,
10 everybody. Thank you for coming out tonight. I
11 appreciate you taking the time. I have about 44
12 slides, which sounds like a lot. I have been accused
13 of being a fast talker, and I will try not to talk so
14 quickly that I rush through it, but many of the slides
15 are photos and pictures of similar of work that's been
16 done elsewhere in the river so hopefully I can get
17 through this pretty quickly, and as Diane said, leave
18 time for questions at the end of the presentation.

19 The Superfund site that we're working on is
20 comprised of -- let's see if this works. I just went
21 through a bunch of slides, sorry. The lower
22 Tittabawassee River is the 24 miles of the
23 Tittabawassee River from Midland where the Chippewa
24 River comes in down to the confluence where the
25 Shiawassee River and the Tittabawassee River joins to

1 form the Saginaw River. So the Superfund site
2 includes the lower Tittabawassee River, 24 miles, 22
3 miles of the Saginaw River and whatever portions of
4 Saginaw Bay we'll need to look at.

5 The Segment 6 and 7 are the last two
6 segments of the Tittabawassee River, the lower portion
7 of the Tittabawassee River down here. We decided to
8 divide up the Tittabawassee River into what we call
9 manageable segments of about three to four miles each
10 so that we could look at those make decisions about
11 those, moving from upstream to downstream in a very
12 systematic way.

13 We are going to talk more about it, but we
14 have specific areas that we call bank management
15 areas, or BMAs, and sediment management areas, or
16 SMAs, for which we're proposing clean-up options. And
17 we expect clean-up of Segment 6 to start in 2019.

18 So, I'm going to get into some more detail
19 but our proposal in a nutshell is for the seven bank
20 management areas that we've identified, we are
21 proposing to stabilize those banks to keep them from
22 eroding and keep the contaminants from eroding into
23 the river system. And for the four banks, or sediment
24 management areas, for sediment area 6-1, we're
25 proposing a combination of capping and what we call

1 monitored national recovery, or MNR. We will talk
2 more about these technologies later. And then for the
3 remaining sediment management areas we are proposing
4 capping of them.

5 So a little bit of background about the
6 Segment 6 and 7. Here's some kind of landmarks that
7 people might know about. At the upstream end of
8 Segment 6, State Road. Gratiot Road is in the middle
9 of Segment 6 and then South Center Road is kind of in
10 the upper portion of Segment 7 -- I hate this. I hate
11 this laser.

12 MS. RUSSELL: Tricky thumbs, sorry.

13 MS. LOGAN: It is tricky. All right. And
14 then Green Point Island is at the bottom of Segment 7,
15 so you might recognize that. One of the important
16 features is that the Shiawassee National Wildlife
17 Refuge is adjacent to much of Segment 7 and that
18 weighs heavily into EPA's evaluation and proposal, and
19 we will talk more about that later.

20 So, I don't have time to get into it much
21 tonight, but we have done extensive investigations of
22 Segments 6 and 7. There has been quite a bit of
23 chemical sampling of both sediments and banks. There
24 have been evaluations of the stability, both of the
25 sediment deposits and of the adjacent river banks, and

1 then there have been biological studies at a site wide
2 level. We've looked at fish tissue and contaminant
3 taken from fish, and we've also done vegetation
4 surveys to see what is growing along the bank and is
5 it beneficial vegetation.

6 So putting these studies together, we came
7 with away with some key findings. One of the -- the
8 most important key findings is that dioxins, primarily
9 furans are contaminants that we're concerned about in
10 Segment 6 and 7. Now, dioxin is not one single
11 chemical, it's a family of similar chemicals that are
12 related. And so furans are included in the family
13 dioxins. So when I talk about dioxin, I'm talking
14 about a mixture of chemicals that we might find. They
15 are not evenly distributed throughout the river
16 system. We find discreet sediment deposits and river
17 banks where there's elevated levels of dioxin. Those
18 banks and the sediments do not -- some are stable and
19 some are more erosive and that factors into it. So we
20 put these pieces together to identify the specific
21 areas that are targeted for clean-up, and it's really
22 the areas with elevated dioxins that are or may be
23 liable to erosion in the future.

24 Of the seven bank management areas, they
25 range from about 130 to 830 feet. In total there's a

1 little over half a mile of banks that we are targeting
2 throughout these two segments. And then the four
3 sediment areas range from about third of an acre to
4 about one acre in size.

5 So this graphic may give you a little bit
6 better feel for the setting of the Segment 6 and 7.
7 Again, I want -- there's some highlights pointed out
8 here that you may know about.

9 MS. RUSSELL: This is also on page 2 of the
10 fact sheet, if you wanted to have it in front of you
11 as well.

12 MS. LOGAN: So West Michigan Park is an area
13 where clean-up had been done in the park early on.
14 There is a neighborhood down along here where some
15 early clean-up was done, but there's been no previous
16 sediment or bank work done in Segment 6 and 7. The
17 hatched areas are the National -- Shiawassee National
18 Wildlife Refuge, and as you can see, three of the
19 segment management areas are adjacent to lands of the
20 Shiawassee National Wildlife Refuge.

21 So why are we going to clean up? We're
22 cleaning up contaminated sediments of river bank soils
23 because they are potential sources of dioxins to the
24 system if they erode. If they do erode, then they can
25 contribute to building up in fish or what we call

1 bio-accumulation or they could be transported
2 downstream and continue to have contaminants move into
3 the downstream system. So we're trying to clean up
4 these areas to cut off potential sources of
5 contamination to the river system.

6 Now I'm going to talk first about bank
7 management area clean-up options and what we have
8 available to us to clean up banks. We have really two
9 technologies. The first technology to clean up banks
10 is stabilization. Stabilization always includes
11 native vegetation that we rely on because the dense
12 roots and the heavy vegetative cover really stabilize
13 the soil and they prevent erosion. Now, typically
14 with stabilization we might also use other
15 stabilization products, and we may end up taking some
16 soil away to reshape the bank and get a more stable
17 angle.

18 The second technology is complete removal of
19 the contaminated river bank, and that is what it
20 sounds like, you just get heavy equipment in there and
21 dig out the bank, you slope it eventually and then we
22 have to re-vegetate it after construction is
23 completed.

24 So, there's advantages and disadvantages for
25 each of the technologies. For stabilization, our

1 advantages include that it's less disruptive during
2 construction, there's less change to the existing
3 property and the river bank shape. It improves
4 habitat quality because we use native vegetation and
5 right now we've got weedy, poison ivy and river bank
6 grapes largely on the river banks, so we try to use
7 native vegetation that improves the habitat, and it's
8 cost effective.

9 The limitations of stabilization include
10 there's much more short term -- much more short term
11 work is required, native vegetation takes a couple of
12 years to establish well so there's maintenance
13 required to get it going and to make sure it grows and
14 fills in appropriately. The contaminants do remain in
15 place so long term monitoring is required and
16 sometimes maintenance might be required to touch up
17 those banks.

18 Here's some photos of some previously
19 stabilized river banks. I'll try not to forward the
20 slides. The first stage is equipment gets out and
21 stabilizes the shape. It takes most of the existing
22 vegetation off the bank. And then some techniques are
23 put down that might be technologies that help
24 stabilize the banks. In this case geo-grid and some
25 blankets. And then initially a crop of it looks like

1 grass comes in. In the first year you just get this
2 grassy crop that really is just there to fill in the
3 first year to let it get over the winter. But
4 ultimately what we're trying to get to is something
5 like these three banks where the native vegetation is
6 very dense and deep, the plant diversity is pretty
7 abundantly diverse and it prevents erosion of those
8 banks.

9 Now, as I said, the second technology we
10 have is river bank removal. And advantages are it
11 takes contaminants away so there's less uncertainties
12 about the performance because the contaminants are
13 gone. There's more flexibility for future land use.

14 However, the limitations, there's
15 significant disruption during construction. It
16 requires complete removal of the existing habitat, it
17 significantly changes the river bank shape and
18 structure and it can cause unintended changes in other
19 areas. So for example, if an area that used to take
20 some of the water re-channels elsewhere, it could
21 inadvertently cause erosion somewhere else.
22 Implementation is usually more costly and complex.

23 So here are some photos. It's very hard to
24 get good photos of the river bank removal, but here is
25 some photos. So if you can see the height of the

1 construction, that for these particular removal
2 projects, it was dug up, the river bank was dug
3 between 10 and 12 feet then it was sloped back from
4 the river quite a ways. This gives a set of aerial
5 photos. Before it was wooded and then during while
6 the trees were taken down, about 300 mature trees were
7 taken down from this area. There were trees planted
8 in so now it is a nice looking meadow but the trees
9 are quite young and nothing like the habitat before.

10 The estimated cost -- this is in the fact
11 sheet as well. The estimated cost for the bank
12 management area, we look at -- we look at cost per
13 hundred linear feet. So stabilization is a little bit
14 over \$50,000 per hundred linear feet and removal is
15 about \$160,000 per hundred linear feet. And then
16 there's set costs, so you have to get your equipment
17 in and you have to get your equipment out, but all
18 together if we did stabilization on all the banks, it
19 would be about \$2 million and if we did removal of all
20 the banks it would be about \$5 and a half million.

21 As I mentioned earlier, EPA is recommending
22 that we stabilize the river banks. Some of our major
23 considerations include the expected acceptance of the
24 community. Particularly we're very concerned with the
25 acceptance of the land owners because we will need

1 access and the ability to do long term maintenance on
2 those banks. The trade-off as compared to what we
3 call short term effects, so really the impact on the
4 habitat. We call it a short term effect but mature
5 forest will not return probably for decades to their
6 condition if we were to remove those. And then
7 because there is a potential for impacts on adjacent
8 areas we've also factored that into our
9 recommendation.

10 So now I'm going to take a little breather
11 and next we're going to talk about the sediment
12 deposits.

13 For sediment management areas and sediments
14 in general, we're looking at three different
15 technologies. Monitored natural recovery, or MNR,
16 relies on natural processes to maintain or reduce
17 risks from contaminants and sediment. Capping
18 involves placing either clean material over a deposit
19 or in our case we have an innovative approach where
20 we can put down a geo-cellular material and because we
21 have sand moving through the system those grids fill
22 up and stabilize the underlying sediment deposit. All
23 caps are designed to prevent future erosion. And the
24 removal is, again, what it sounds like, taking away
25 the contaminated sediment deposit out of the river,

1 either in wet or dry conditions, and disposing of the
2 material in an approved location.

3 Monitored natural recovery, the advantages
4 are that it's non-invasive because you're just really
5 monitoring the situation, there's no construction and
6 there's no changes to the habitat or infrastructure.
7 Very low implementation cost. The limitations are
8 that the contaminants do remain in place so they need
9 to be monitored. It can be slow in reducing risks
10 compared to other approaches if the contaminants are
11 near the sediment surface. I don't have a picture of
12 monitored natural recovery so I'm going to move into
13 capping.

14 The major advantages and limitations, when
15 you put a cap material down there's rapid risk
16 reduction, there's less infrastructure disruption
17 during construction as compared to removing sediment.
18 It can improve habitat quality because in the
19 Tittabawassee River, because we have a sandy river
20 bottom, we don't have a lot of aquatic vegetation and
21 so the caps can provide opportunity for aquatic
22 vegetation to develop and they are cost effective.
23 The limitations, the contaminants remain in place and
24 long term monitoring is required and possibly
25 maintenance.

1 And here's some pictures of sediment capping
2 with sand and stone caps. I want to point out a
3 couple things about the Tittabawassee. As you can
4 see, the construction equipment is driving right into
5 the river. In most parts of the Tittabawassee we have
6 very shallow water and so that allows the equipment --
7 the construction equipment to get in on temporary mats
8 that are placed down, however, in some of the sediment
9 deposits we're going to talk about, they're mostly
10 shallow but then they might have portions that's deep,
11 so that increases the complexity of construction.

12 Here's some pictures of the innovative cap
13 approach that I was talking about. So a geo-cellular
14 material is placed in basically row by row and
15 stretched out over the deposits, so this is multiple
16 rows, and then ultimately if you can see the outline,
17 this is the material and sand is filling it in.
18 Again, this shows you how shallow the river is. It's
19 very labor intensive but this kind of CCS capping uses
20 very little heavy equipment and so it's easier to do
21 by boat or from upstream if need be.

22 So dredging and removal, the major
23 advantages and limitations are it removes the
24 contaminants from the river. Now, there's a thing
25 called residuals. Dredging cannot remove a hundred

1 percent of the material so there's something that we
2 call residuals that are left behind. This is an
3 advantage if you can get low residuals, then you've
4 got great performance. You also have rapid risk
5 reduction if low residuals are achieved. The
6 limitations are there's significant infrastructure and
7 disruption during construction and particularly
8 getting the equipment and material to the location.
9 There can be residuals, stuff can be stirred up into
10 the water, and then implementation is usually more
11 costly.

12 So let me show a couple pictures of some
13 projects we've done with wet removal. Wet removal
14 requires a large area upland to manage the sediment
15 and take the water out of them. So if you can get the
16 scale of this, here's some trucks and here's what you
17 would need in terms of wet removal, a couple of acres
18 at least for each of the projects.

19 We typically have done more of the removal
20 in dry conditions. In that case, a wall is installed
21 around the sediment deposit, water is pumped out of
22 the deposit and then the material is dug right out.
23 That's the preferred approach but it depends on water
24 depth. The ability to do that depends on having
25 shallow enough water. So I'm not expecting anybody to

1 pay attention to this, this is in the fact sheet, this
2 table, but we compare our alternatives to get the
3 effective implementability and cost, so this just kind
4 of lays out EPAs preferred alternatives and where they
5 fall. So highly effective, easier to implement and
6 cost effective. And, again, this is in the fact sheet
7 if people want to look at it and have questions about
8 the comparison.

9 So, again, EPAs recommended option is for
10 sediment management area 6-1, combination of capping
11 and monitored natural recovery, and for the other
12 three sediment management areas, capping. And really
13 the major considerations that we thought about were
14 largely impacts -- potential impacts to the adjacent
15 areas and adjacent habitats. As I mentioned, the
16 three in Segment 7 are adjacent to the Shiawassee
17 National Wildlife Refuge, and we really have concerns
18 of getting construction equipment in there, could
19 cause some damage to that very natural and beautiful
20 area.

21 The other considerations are where the
22 contaminants are. Some of the contaminants are
23 already buried at depth so we believe that they can
24 remain in place either under the existing sand or
25 under a cap. The evaluation of the current stability

1 indicates that these deposits have been stable for
2 quite a while, there are stable point bars, they've
3 undergone major flooding and have not shown erosion so
4 we believe we can continue to leave the material in
5 place and monitor it.

6 And also safety is concern. I'm going to
7 talk about the location of these but because they're
8 big and they're in the middle of the river, safety is
9 always a concern during construction but these would
10 be particularly challenging for both the recreational
11 users and the workers if we were to try to do removal.

12 And then implementability, I'm going to talk
13 about this, but some of these are deeper -- have areas
14 that are deeper and shallower so we've kind of got a
15 mish-mash of what technologies are appropriate.

16 Access is a very big concern, staging is a big
17 concern, and then I already mentioned the location in
18 mid channel is something we have to deal with.

19 So I've got a series of four figures and
20 they're pretty technical so I'm not going to spend a
21 lot of time on it. We can go back and I can answer
22 questions if you want, but let me just kind of point
23 out in each of the four figures the pink outline is
24 the current understanding of the sediment deposits,
25 the colors that you're seeing represent the depth of

1 the sediment or water depth on top of it. So the
2 deeper blue areas, the sediment is lower and there is
3 more water on top of them. And then as you get
4 towards the oranges and yellows and reds, that
5 sediment is shallower with less water on top of it.

6 So for this first 6-1 SMA, this is where
7 we're proposing the capping and monitored natural
8 recovery and in this mid channel portion of the
9 sediment management area the contaminants are already
10 buried below four to five to six feet of sand, so we
11 feel that that sand can remain in place. Nearer to
12 the shoreline, the material is buried, but it's buried
13 maybe one or two feet so we would put a little bit
14 more cap material on that to further stabilize the
15 sand bar.

16 If -- because this deposit extends all the
17 way to the middle of channel, if we were to do other
18 work, we would probably have to do it in two phases,
19 so we would be managing working around recreational in
20 phases of that. The depth of the contamination itself
21 in this particular deposit goes down as deep as 14
22 feet, so removal would be a very deep removal if we
23 tried to dig it out.

24 Now, I've got two figures next that show the
25 Segment 7 sediment management areas and the adjacent

1 land use, so as you see, there's quite a bit of
2 property that is associated with the Shiawassee
3 National Wildlife Refuge, in particular sediment
4 management area 7-2 is right in the middle of the
5 river. This is where the Shiawassee comes in, the
6 Tittabawassee splits and goes around Green Point
7 Island and then the Saginaw River is -- commences when
8 the Shiawassee and the Tittabawassee join, but both of
9 these two are in mid channel and so we would need to
10 be able to bridge to them somehow, and by creating a
11 bridge you're creating safety issues but also adjacent
12 land, you would need to take down some of the existing
13 habitat or footprint it if we were to try to remove
14 them.

15 This is just zooming out a little bit more
16 so you can see this -- you can see the rivers a little
17 bit better. Tittabawassee River here, the Shiawassee
18 River here and then the two of them combined to form
19 the Saginaw River. Again very challenging access
20 routes to try to get to these sediment deposits.

21 So in the sediment management area 7-1, the
22 dioxin is closer to the surface in some areas and it's
23 relatively stable so we think that access and staging
24 for a CCS cap could be done upriver and the material
25 could be moved down and placed here without any

1 footprint on the Shiawassee National Wildlife Refuge.
2 It's a manageable depth and the water depths are
3 manageable here.

4 For sediment management area 7-2, which is
5 our largest one, it's mid channel, as I pointed out.
6 The dioxin is mostly buried. It would be very
7 difficult to try to get to this area. Now, the corner
8 here, because of the backwash, is a little less stable
9 so that's a deeper area where construction would be
10 more challenging and the flow patterns from both the
11 rivers would be complicating the construction.

12 And again similar for 7-3, which is a small
13 mid channel area. The deeper portion in the southern
14 part would make construction somewhat challenging and
15 then the mid channel location would also make it
16 challenging and the access through the refuge or other
17 ways.

18 So selecting the final clean-up plan.
19 You've heard it a few times, our proposed options are
20 stabilization of the banks and combination of capping
21 and MNR for 6-1 and capping for 7-1, 7-2 and 7-3. We
22 evaluate against effectiveness, implementability and
23 cost but really we have sub-categories for
24 effectiveness that include the overall protection,
25 compliance with laws and regulations and short term

1 effects. There's others as well but these are the
2 major ones we look at.

3 For implementability we really consider
4 whether or not how difficult it is to get the work
5 done and the overall acceptance, particularly by the
6 property owners. And cost is just cost. But our
7 proposal is about five and a half million dollars in
8 terms of work that would be done in Segments 6 and 7.
9 So we believe that these recommended alternatives are
10 the best balance of effectiveness, implementability
11 and cost. They provide long term effectiveness and
12 permanence while they minimize short term impacts and
13 they can be built -- we believe they're reliable to
14 maintain.

15 And I will mention that we've done similar
16 work upriver, and in June of 2017 we had had the
17 second highest flood of record and the banks that we
18 had stabilized, the areas we had capped all had
19 remained intact through that flood, so we believe they
20 can be effective in the long term as well.

21 So our process is we develop clean-up
22 options, we're in the public comment period. I think
23 Diane mentioned we're going to take comments later but
24 we propose a clean-up plan, so we're in a comment
25 period until November 20th. And we will accept

1 written public comments throughout the public comment
2 period. But here we are at the public meeting tonight
3 so there is an opportunity for you to present public
4 comments that will be transcribed here tonight. You
5 can either write them on one of the sheets that Darren
6 has and hand it in or the court reporter will take it
7 during the comment period.

8 I already said these dates so I went through
9 this. So the next step is after the comment period
10 closes, EPA will work with MDEQ, we'll take a look at
11 the comments and we'll say to we need to change the
12 remedy, and the remedy can change based on public
13 comments. We will then finalize the plan and enter
14 into an agreement with Dow to design and implement the
15 remedies. We expect work to begin in 2019 and then we
16 anticipate construction will take to two to three
17 years, so be complete in 2020 or 2021.

18 Now this one is a part of a figure that we
19 have in one of our progress brochures, and I wanted to
20 end up here because really what we're striving to do
21 is have continuous progress every year. We have been
22 very successful at getting projects going and keeping
23 them going by using the small segment by segment
24 approach. And the idea here is the colors represent
25 time periods and the shape are the type of projects,

1 but we want to be peppering the bottom part of the
2 river with more projects, that's what we're here
3 proposing.

4 So that is the end of my presentation.

5 MS. RUSSELL: And we're going to get into
6 questions, and if you have any questions as she
7 provided her presentation. One thing I just want to
8 note for you is we do have a court reporter so raise
9 your hand if you have a question, we'll call on you,
10 and then please state your name so that can be
11 recorded. And also another note is ask your questions
12 now because once we get to the break and we get into
13 the comment period, we will be listening and receiving
14 your comments, but we're not going to be able to
15 respond at that time. Response to comments that are
16 lodged here tonight orally or any kind of written
17 comments you provide, we'll be responding to those in
18 what we call a responsiveness summary that will be
19 included into the final decision, so every comment
20 that we receive, we're going to be addressing in that
21 format.

22 So with that I'm going to open it up for
23 questions. Just raise your hand and Mary is here. I
24 did mention some folks here in the room, one folk --
25 one set of folks I didn't want to forget was we have a

representative from the community, Dave Summers, who is from the Saginaw River Contamination Community Advisory Group. That's Dave right there. So he also -- we meet with his group every other month, they really keep up to speed. It's a group comprised of community members where we go every other month to talk to them about the project and what we're doing and they ask us questions as well so he is a resource and his group is a resource for if you also have follow-up questions.

MS. LOGAN: And Kevin and Bob are here, too.

MS. RUSSELL: Thank you. Oh, hi, Bob.

Okay. With that, just raise your hand and we'll go ahead and get started with the questions. Yes, ma'am.

MS. [REDACTED]: Hi, my name is [REDACTED], [REDACTED], and I live [REDACTED] Delaware in Saginaw but in the mid '60s my parents built a home on the Tittabawassee between Frost and Dice, the big barn roof house, and I just want to know, it says in your pamphlet here that current waste management practices now assure that there are no unacceptable contaminant releases from Dow's facility, and I don't understand how you can say that when you say about that there could be erosion, that some of the contaminated sites are way below the surface and that they're not really

stabilized, there could be problems so I don't think that that -- is that correct that there are no unacceptable contaminant releases, that that's what it says in your --

MS. RUSSELL: Did you want to get into source control and talk about that, Mary.

MS. LOGAN: So we believe that the original source of the contaminants came from Dow's plant in Midland, so that's around up here.

MS. [REDACTED]: Right.

MS. LOGAN: Right now the State has very stringent license requirements both air, water and waste management in terms of what goes on at the plant site, so the releases, the discharge to the water is regulated, so we believe that there's been source control at the Dow Midland plant.

What happened is that the early 20th century there was, just like any industry, there was direct discharge into the river, everybody did it, and so these deposits really probably occurred in the early 20th century and now we're concerned that there's -- once they built up they're now re-eroding or eroding. So that is what we're trying say with those two statements.

MS. [REDACTED]: I see. Can I just share

something, "In 1983 EPA scientists concluded that dioxin found in the air, water and soil was the most potent substance that they've ever studied." My nephew was born of my sister, who my mother -- my mom lived -- we lived on the Tittabawassee and [REDACTED] got a cancer called Ribamar sarcoma and died when he was 5. My question, in 1994 Leon Caston from the Environmental Task Force said, "I fear the industrial protection agency will continue to bow to the wishes of industry and the nation and its children will suffer profoundly."

Government has failed us and we live in fear and I see all the time Dow is paying massive amounts of money and Donald Trump just appointed Dow's dioxin lawyer as his choice to run the Superfund. Is anybody listening? We're in trouble. It's -- Dow's effluents then run into -- and contaminate the Saginaw River, Saginaw Bay and Lake Huron resulting in one of the most extensive and highly dioxin contaminated sites in the country. I just -- I don't know, I just feel really bad. I think that our leaders have betrayed us and there's got to be something else more we can do.

MS. LOGAN: Let me say first I'm sorry for your family's loss, but EPA's position is that we believe in an enforcement first policy and we believe

that polluters should clean up their messes.

MS. [REDACTED]: Yes, they should.

MS. LOGAN: So that's what we are doing and that's what all these projects are intended to do is to clean up the dioxin problem that came from releases when Dow was operating a hundred years ago.

MS. [REDACTED]: Uh-huh.

MS. RUSSELL: Thank you. Back here, sir.

MR. [REDACTED]: [REDACTED], [REDACTED] North River. I'm between 6-1 and 6-3, I believe. But I'm on what used to be Cavanaugh Lake, has been declared by the Saginaw County Drain Commission as [REDACTED] Drain now, so it's no longer Cavanaugh Lake. But when Al Taylor came to my house three times from the EPA and brought the books of Cavanaugh Lake, they were going to do something about it. When Dow Chemical came to my house with a couple people and a court stenographer and whatever and had me sign these papers over to them, I said certainly they could clean this up but I don't see on your map where they're going -- anything is going to be done.

Dr. Brasseur, which is north of me, had 6,000 readings and on the end of Wallace Drive my neighbor had 7,000 readings for dioxin. Now, we're on that lake or now the new [REDACTED] Drain Extension. I

don't see where anything is going to be done about this.

MS. LOGAN: So let me try to take an answer to that. The proposal that we have right now tonight is for sediment and river banks within the river. In 2015 EPA put out a proposal to clean up of flood plain properties, and we went through a public process with that. So we picked a clean-up approach for flood plain properties and what Dow is doing under legal agreement and oversight by agency is property by property evaluating properties compared against our clean-up numbers to see if they are eligible for clean-up. So that's going on. It's a separate process from what we're talking about tonight, but it is going on.

MR. [REDACTED]: Thank you.

MS. LOGAN: You're welcome.

MS. RUSSELL: Yes, we had a question here.

MS. [REDACTED]: Yes, I'm [REDACTED], I lived on North River Road just past Frost Road. I wanted to know what they're doing about health problems that this has created for people. I lived there from '58 to '83 when it was the worst. You couldn't even walk outside and you -- the smell of it, I mean it was terrible. I had two kids and I mean

they wanted to go out and play but you couldn't let them go out and play. Now, when are they going to do something about the health problems this is creating? And it's myself, too. I mean -- or did they already do it? Because I moved away in '83 -- '86 and I didn't know about this all was going on. So I think it's time that they start doing about health problems. I'm one of them.

MS. LOGAN: And, again, I'm sorry for you and your family's situation. The EPA, MDEQ, we are clean-up agencies, and so what we do is we look at the current situation.

MS. [REDACTED]: I called, I got no answers. People didn't return the calls. So I just wonder what they are doing. Nothing, I guess.

MS. LOGAN: We are a clean-up agency so we're working on clean-ups. We can give you contacts at the state health department or the federal health group, which is called Agency for Toxic Substances and Disease Registry, that work on health issues, but we really work on clean-ups. So we can get you the contact information at the health agencies.

MS. [REDACTED]: Please. Thank you.

MS. LOGAN: You're welcome.

MS. RUSSELL: We had a hand over here I

think. What -- go ahead.

MR. [REDACTED]: [REDACTED], I live on Day Road. BMA 6-4, right to that arrow. The river bank is 30 feet tall there. Are you going to do the river bank there? Because mine is -- the guy built the whole bank up, it's cinder blocks all the way up to the top, it's big chunks of it, so if you start at the bottom, you have to go all the way to the top.

MS. RUSSELL: So you actually, you have property BMA, you said, 6-4, is that part of your property or adjacent to or nearby?

MR. [REDACTED]: I'm at the tip of the arrow, yes, at 6-4.

MS. LOGAN: So we are finding that there are eroding river banks?

MR. [REDACTED]: On both sides of my property --

MS. LOGAN: There are eroding river banks throughout Segment 6 and 7 but the metric that we use is that they have to be both highly erosional but also have high levels of dioxin, and so there are eroding river banks that don't have the levels of dioxin that are triggering a clean-up.

MR. [REDACTED]: Mine's not eroded at all.

MS. LOGAN: If yours is not eroded at all then we would --

MR. [REDACTED]: Both sides is going --

MS. LOGAN: We would have looked at those to see whether or not those warranted being banked. So the combination of dioxin levels and erosion levels is what identifies the bank areas. If it does end up coming onto your property, the construction, Dow will work with you to make sure that they work on a design that you're comfortable with.

MR. [REDACTED]: Are they going to do the river proper there?

MS. LOGAN: I think there's no sediment management area adjacent to that so it would be the banks.

MS. RUSSELL: Another question. Yes, sir.

MR. [REDACTED]: My name is [REDACTED]. I live at [REDACTED] Geddes Road. When this construction equipment has to access the river to get in there and dig it out or whatever, how are they getting in there? Are they just making an agreement with property owners or are they condemning the property to get to it or are they just hoping that people will say yeah, go ahead, cut through the yard?

MS. RUSSELL: We are not condemning properties. Let's make that clear.

MS. LOGAN: We are not condemning

properties. Dow is trying to get voluntary access agreements with property owners.

MR. [REDACTED]: Say that last part again.

MS. LOGAN: That Dow is getting voluntary access agreements with property owners. We actually met, Joe and I and some of the folks, met with the refuge, because the refuge would be so impacted by these particular constructions to try to hear their concerns. And they have a lot of concerns with us trying to build a road through a very sensitive ecosystem, so we are trying to work with the property owners to make sure that the access is appropriate. Some of the properties happen to have like farm fields nearby so we may be able to follow the farm road, but if a road is constructed, then when we take it out, we try to return it to pre-existing conditions.

MR. [REDACTED]: Okay.

RESIDENT: What are you going to do about when you go over the grade -- you're probably past that point already, but when there's farmer fields on right side, farmer fields on the right side, now they don't farm it at all. Well, how do they clean that up? I mean there's acres there.

MS. LOGAN: So, again, tonight we're talking about the river, but if a farm field or a former farm

1 field triggers a clean-up -- or a person's backyard or
2 whatever, the soil is dug up and taken away and
3 replaced with clean soil.

4 RESIDENT: Also, when I lived on River Road,
5 we had 15 acres of farming country down there. They
6 didn't do nothing about that.

7 MS. LOGAN: Anything that's in the
8 frequently flooded part of the flood plain is part of
9 our 2015 flood plain clean-up plan.

10 RESIDENT: Yeah, because it flooded every
11 year down there. I mean if you planted beans,
12 whatever you planted, it was gone, you know. And what
13 took them so long to do anything about this? This
14 went on for years and years and years?

15 MS. LOGAN: You know, all I can say I think
16 that --

17 RESIDENT: Dow got away with a lot, believe
18 me.

19 MS. LOGAN: I think the agencies are
20 committed to say let's keep moving, let's keep
21 projects going and let's get the clean-up done.
22 That's where we are now. I wasn't on the project back
23 in the time you were talking about so I don't know
24 some of that history, but I think we want to move
25 ahead and get the clean-up done.

1 MS. RUSSELL: Yes, sir. You had your hand
2 up.

3 RESIDENT: I may be at the wrong meeting.
4 Piggy backing on what the man was saying about at the
5 end of Wagner and Wallace Drive, I had -- Dow came out
6 and sampled my property and I don't know if your
7 sampling is similar to theirs, they do the -- your
8 flood plain. Where I live off of Wallace Drive it
9 floods three, four times a year down on the bottom,
10 which I presume that's where the dioxin is, but their
11 sampling is for the eight year flood plain, so if this
12 stuff that's up higher is mitigating what's down
13 lower, so if they do clean it up, if it's at a level
14 high enough, I know that it will be because it's
15 mediated with that stuff on the higher land rather
16 than the stuff that's flooding two to four times a
17 year.

18 MS. RUSSELL: I'll let Mary answer it, but
19 they definitely look at the flood plain in the
20 frequently flooded area as a whole because they look
21 at how you'd be exposed, right. So when you use your
22 property, you use all of your property and that's kind
23 of how exposure would look and that's how they kind of
24 help calculate those numbers but I don't know if you
25 had anything you wanted to add to it.

1 MS. LOGAN: No, I think that's -- we look
2 differently at whether you mow it and maintain it like
3 a normal yard or if it's other land uses, but
4 otherwise if it's all mowed, like a backyard, it could
5 be an area where you could playing anywhere or working
6 anywhere, so it's what's called a single decision
7 unit, and we do look at that entire area as one.

8 RESIDENT: That's how my land is and the
9 rest going towards North River Road, it's all mowed
10 and people use that land, however, it doesn't take
11 into account the severity of the two to four time a
12 year flood plain, rather it's the overall eight year
13 flood plain.

14 MS. RUSSELL: And that's really what the
15 eight year flood plain in our definition is, it's that
16 frequently flooded area that's going to get inundated,
17 you know, with that frequency.

18 MS. LOGAN: Maybe what we could do, because
19 of the constraints with the library, if we have time
20 at the end we'd be happy to talk to you about your
21 property.

22 MS. RUSSELL: Yes, sir.

23 RESIDENT: The testing that's been done
24 years ago, the hover crafts came up the river and they
25 drilled on land, can I have copies of the results of

1 those tests?

2 MS. LOGAN: So you can have copies of any
3 sample that was taken on your own property because
4 privately -- privacy considerations, and we have
5 general reports of the general conditions. Are you
6 asking for your own property?

7 RESIDENT: I am.

8 MS. LOGAN: So what I would like you to do
9 is give your information specifically to Darren and
10 then we'll get that out to you in a letter.

11 RESIDENT: Okay. And then in a nutshell you
12 keep saying, the basic thing you're doing is burying
13 this dioxin, just burying it.

14 MS. LOGAN: The basic thing we're proposing
15 tonight is to put stabilizing covers over both the
16 banks and the inside of the channels, yes.

17 MS. RUSSELL: And those things have to be
18 monitored as well, so it's not that you just bury and
19 walk away, there's a monitoring component to make sure
20 that those remain protected.

21 RESIDENT: Forever?

22 MS. LOGAN: Yes.

23 RESIDENT: Yeah.

24 MS. RUSSELL: Actually, it's in place with
25 the EPA, we have to have that monitoring component

1 when we do.

2 RESIDENT: Money seems to be a big
3 consideration. Wouldn't it be, I don't know, get it
4 out of there, be done with it? And there again,
5 now -- okay. So this cover fails upstream, so now you
6 just contaminated a whole bunch more downstream.

7 MR. LOGAN: So let me say about the
8 monitoring, I actually -- I want to disagree with that
9 conclusion, because if we could have gotten it out
10 without the impacts of trying to construct roads
11 through pristine forest, I think we would have leaned
12 that way, but really the issue of just getting to
13 these areas and then the safety and managing them is
14 really what the consideration is, but cost is one of
15 our criteria, but cost was not considered much at all
16 for these proposals.

17 RESIDENT: So burying it is a temporary fix.

18 MS. LOGAN: Well, some of that material has
19 been out there for a hundred years and buried in a
20 stable point bar so we think that we can continue to
21 work with nature and the geometry of the river to keep
22 it there. But as Diane said, we monitor it, we
23 monitor after severe storm events, we monitor it
24 routinely and if any work needs to be done to fix it,
25 we would do that.

1 RESIDENT: And I still find it just amazing
2 that, you know, here's a hundred feet of bank that's
3 contaminated but the next hundred feet isn't, that's
4 just baffling how that might, you know, and just like
5 I'm on one side of the river and St. Andrew's Park's
6 on the other side, and that got stripped four feet off
7 immediately. It's got to do with who you are and what
8 you know. So my grandkids play on my land every week,
9 they don't count?

10 MS. RUSSELL: Well, and it really is -- I
11 could see where it would be really kind of, you know,
12 why would it be here and not here, but it really
13 depends on the characteristics of the river and the
14 depositional environment when those contaminants were
15 out there. So it's not everywhere. I think, you
16 know, we think when water touches something that must
17 also be impacted, but it really doesn't work that way
18 because we are talking about sediments.

19 RESIDENT: It's not the water, it's the
20 dirt, correct?

21 MS. RUSSELL: It's the sediment, yes.

22 RESIDENT: Dirt or sand or whatever, okay.
23 So my particular situation is every year it washes in.
24 It doesn't wash out, it washes in and --

25 MS. LOGAN: So, again, if you're talking

1 about your yard --

2 RESIDENT: I'm not at all, but the land I'm
3 talking about is recreational land, farm field. The
4 combine picks this corn in a dust cloud of sediment,
5 okay, and it goes off to be eaten. Now that's -- you
6 know, somehow you're telling me that my spot's okay,
7 it won't hurt me and I disagree. Why can't we all be
8 treated equally coming down that river, you know,
9 that's...

10 MS. RUSSELL: And the data definitely drives
11 where our decisions are made and what we put in place
12 there, so that data tells us, you know, what are the
13 depositional areas, where are the areas that we need
14 to focus our work. That's very key for us to be able
15 to do our job and do protection of health in the
16 environment to make sure that we're going in those
17 areas where there is an exposure concern, and it does
18 seem counter-intuitive but it is not everywhere,
19 because we are talking about sediments and we are
20 talking about deposition.

21 MS. LOGAN: We've probably taken more than
22 20,000 samples throughout the Tittabawassee River over
23 time in addition to current sampling that's going on.
24 So there's been quite a bit of data that drives where
25 we focus our activities.

1 RESIDENT: That was part of my question, I
2 requested these samples. Now say this clean-up
3 started a few years back up in Midland, right, I would
4 almost request a re-sample, you stirred it up up
5 there, where is it going, you know? I know it comes
6 to me, that's every year there's a new sand bank or
7 berm. Again, I don't want it anymore, you know.

8 MS. LOGAN: Tonight we're talking about the
9 proposal for these deposits.

10 RESIDENT: I'm in section 6.

11 MS. LOGAN: But let me say this, for the
12 properties that have been cleaned up there is
13 monitoring of some sub-set of those after the clean-up
14 to see is there re-contamination, because we know
15 that's a concern, and we've been doing that for years
16 now and have not seen those properties that have been
17 cleaned up re-contaminated.

18 RESIDENT: Upstream. I'm talking we're
19 downstream.

20 MS. LOGAN: We can back up. We did some
21 work over in the Riverside Boulevard area and then
22 West Michigan Park, very close to here, we did that
23 back in 2008, and what she's talking about, we go back
24 and re-monitor because we are doing work upstream from
25 there, if there's re-contamination in those already

1 cleaned up areas, and what she's saying is we have not
2 found re-contamination as we study that sediment as it
3 gets inundated with flood waters every year post
4 clean-up, so that's a key data point for us to
5 understand is there a re-contamination that's
6 occurring from upstream and thus far --

7 RESIDENT: Who cleans up the Center Road
8 boat launch after every flood?

9 MS. RUSSELL: So Dow has a program in place
10 where they do clean up sediments that they put in
11 place, it was an agreement that they had put in with
12 the State.

13 RESIDENT: So do they test that every time
14 they clean it up or do they just clean it up because
15 they think it might be contaminated?

16 MR. RUSSELL: It is a proactive step. But
17 at the same time the boat launch would be flooded so
18 would these other downstream areas like Riverside
19 Boulevard so that we can test that sediment at that
20 time.

21 RESIDENT: You're right around my question.
22 Is that contaminated every year at that Center Road
23 boat launch?

24 MS. RUSSELL: Let me, I guess contamination
25 would depend again on --

1 MS. LOGAN: Let me. I don't think --

2 RESIDENT: Why are you cleaning it up every
3 year?

4 MS. LOGAN: We're cleaning it up -- we're
5 having Dow clean it up because at the time the process
6 was started we didn't know what the levels might look
7 at, so it was just a consideration of get rid of this
8 material that people might come in contact with. As
9 Diane said, we've done clean-ups in -- or Dow has done
10 clean-ups under the agencies at West Michigan Park and
11 then at a series of properties over here, which is
12 Segment 7, those were done in 2008 and 2009, and every
13 year after flooding those areas are sampled to see if
14 they become re-contaminated and we have not seen a
15 problem with them. We will continue that process with
16 properties that have been cleaned up in Segment 2,
17 Segment 3, Segment 4 because we want to assure people
18 that re-contamination is not occurring or if it is
19 that we're taking appropriate responses.

20 MS. RUSSELL: Go ahead, sir.

21 RESIDENT: A couple meetings ago -- a couple
22 years ago you said that you sampled that property and
23 the rates were at 70 parts per trillion. I would
24 assume that when you clean it up it was down to zero
25 parts per trillion?

1 MS. LOGAN: Probably 10 because there's
2 statewide background.

3 RESIDENT: A couple meetings ago you said it
4 was up to 70.

5 MS. RUSSELL: So Riverside, is that
6 Riverside Boulevard or West Michigan Park?

7 MS. LOGAN: And we have seen that there is
8 some deposition. The clean-up numbers that we're
9 comparing against is 2 -- for residents is 200 parts
10 per trillion, so we're looking at the trend over time
11 and we will continue to do that.

12 RESIDENT: Because it's been eight years and
13 it's already up to 70.

14 MS. RUSSELL: We are continuing to keep our
15 eye on it.

16 RESIDENT: I just want to not let it go,
17 that it stays clear and it wasn't according to your
18 data.

19 MS. LOGAN: It has gone up over our initial
20 levels but it is not at our clean-up level.

21 RESIDENT: Okay. That's more accurate.

22 RESIDENT: So there is a Flint water level,
23 acceptable lead level in -- there's an acceptable
24 dioxin level, is that what you're saying?

25 MS. RUSSELL: So we look at site specific

1 information.

2 MS. LOGAN: It's site specific information.

3 MS. RUSSELL: And can treat that, what that
4 number needs to be for clean-up.

5 MS. LOGAN: EPA does not have standards for
6 soil or sediment, we have standards for water. So
7 what we would do is we work with toxicologists to help
8 us understand how would you develop a clean-up number
9 for soil and other media.

10 MS. RUSSELL: It helps us make decisions
11 based on site specific information.

12 RESIDENT: So site specific example, West
13 Michigan Park, highly used public area, little guy
14 across the river, just him and his family use area,
15 could be the same dioxin levels but site specifically
16 what are you saying?

17 MS. RUSSELL: When we say site, we're
18 talking about the Tittabawassee River, not like just
19 one property versus another. It's site -- we develop
20 those numbers based on information that we -- the
21 chemicals of concern that we're looking at here, how
22 they behave and they look at -- and the other
23 parameters are climate -- specific climate to
24 Michigan. Basic numbers don't put those factors in
25 place, dust exposure, so all those site specific

1 factors, and especially that a lot of these yards for
2 the most part are considered backyards. How you use
3 your backyard is different than how you access your
4 home everyday from the driveway or garage to your
5 home, so that's a daily use versus maybe backyard that
6 has a different level of use associated with that as
7 well.

8 RESIDENT: So specifically it's how you use
9 your land?

10 MR. LOGAN: No. We set two sets of clean-up
11 numbers, one was for what we call maintained
12 residential property. Again, this is not the purpose
13 of tonight, we went through public comment in 2015 and
14 2014, but we set two sets of clean-up numbers. For
15 any property that's used like a typical backyard, it's
16 mowed, it has gardens, it has play areas.

17 MS. RUSSELL: Lots of use.

18 MS. LOGAN: We have one set of clean-up
19 numbers for any property that meets those criteria.
20 Then we have a second clean-up number for what we all
21 other land uses, so that could be farm land, it could
22 be forest, it could be fallow fields, it could be
23 recreational properties, and that's a different
24 clean-up number, but there's two clean-up numbers that
25 get applied depending on how the land is used.

1 When you look --

2 RESIDENT: What is that number you're
3 talking?

4 MS. LOGAN: For residential maintained
5 properties it's 200 parts per trillion of dioxin.

6 RESIDENT: It's a number of -- okay.

7 MS. LOGAN: And for the other land use it's
8 2,000 parts per trillion.

9 MS. RUSSELL: Again, this is on the flood
10 plain.

11 RESIDENT: That's a pretty big difference.

12 MR. LOGAN: And that's based on the fact
13 that with other land uses small children are not as
14 likely to be exposed to contaminants in dirt as they
15 are in their own backyard.

16 RESIDENT: Sorry. Is that still the river
17 bank or the whole flood plain?

18 MS. LOGAN: The flood plain, the eight year
19 flood plain.

20 RESIDENT: We're not talking about that yet?

21 MS. LOGAN: We've already picked that
22 clean-up plan. And we can get you information about
23 that. We don't have it here tonight because that is
24 an ongoing clean-up process and we're probably about
25 half way done with that.

RESIDENT: I was just kind of hoping to get my bank cleaned up for now, how's that? Can we go with that?

MS. RUSSELL: And like Mary said, how we looked at this is definitely an intersection between eroding bank and if there's contamination that's at risk of becoming a source again. So those two factors have to exist. Just because a bank is eroding doesn't necessarily mean that we're going to take any action to stabilize that. It's really that key factor of having that intersection of those two properties, of having contamination that could be a source, because that's what we're, under our law, we need to go and address.

You had another question. Sir.

MR. [REDACTED]: My name is [REDACTED], [REDACTED] Midland Road. I'm wondering about loss of income when they come down there and work on that river bank or whatever. I rent my ground out. I use that to pay my taxes.

The other thing is I have access from Midland Road clear down to the river. I wonder if there's any compensation or repair for that if the culvert gets -- I have a culvert with [REDACTED] Drain on it, I believe that's the name of that drain. And I'm

wondering if they use that if it will be made like it is now. The county put that in here a few years ago.

MS. RUSSELL: And if we need to -- and I'm not sure site specifically with your property, but if we need to access that, Dow and the technical team are going to work with property owners that we need to get access on to make sure that we avoid those kind of issues.

MR. [REDACTED]: You're going to need access to get there.

MS. RUSSELL: Then we'll talk to you directly about those issues.

MR. [REDACTED]: There's another property next to me, and I don't know if the owner is here or not, but the farmer gains access to his through mine.

MS. RUSSELL: Yeah, okay. Definitely things we would take into consideration before coming up with a -- so tonight we have to come up with what we're going to do before we start building plans to do it, so the planning phase and how we're going to access this and that, tonight we need to make sure the approach is one we're going to choose so we can build the plans based off of that.

MR. [REDACTED]: I would think it will be river bank stabilization from seeing what you said tonight.

MS. RUSSELL: Yeah. And if you'd like to submit that as a comment, you can do that as well. It's your preference.

MR. [REDACTED]: I'm sure you're going to be there to talk to me anyway. Somebody is going to be there to get down there.

MS. RUSSELL: Yeah, absolutely. Do you have a question, sir?

RESIDENT: Yeah, all this contaminated stuff that you take out of the river, what do you do with it? Where does it go?

MS. RUSSELL: Where does it go?

MS. LOGAN: Some of it has gone to the City of Midland landfill, some of it has gone to Birch Run landfill, and right now a lot of it is going back to Dow's plant, Midland plant. There's two disposal ponds that are used. One of them takes more highly contaminated material and the second one takes the lower levels, and so the State has got an active license and so that material is being managed where there's other contaminants at Dow's plant for the most part at this point.

MS. RUSSELL: So the State is really watching that under that hazardous waste operating license, these components of managing those potential

1 sources.

2 RESIDENT: Where is that in Birch Run,
3 Rathbun Road?

4 MS. LOGAN: I don't know that.

5 MS. RUSSELL: Birch Run landfill, I don't
6 know what road it's off of.

7 RESIDENT: It's off Rathbun.

8 RESIDENT: Probably where the old garbage
9 dump is.

10 MS. RUSSELL: So we can't have soils taken
11 to a landfill unless it's properly managed, so it has
12 to have that certification to be able to handle this
13 type of waste.

14 Do we have any other questions? Yes, sir.

15 RESIDENT: Well, as a sportsman that's lived
16 on the Tittabawassee River my entire life, I just want
17 them to know that Dow infringed on our riparian rights
18 for the sportsman by dumping that dioxin in the water.
19 That's all I wanted them to know.

20 MS. RUSSELL: Yes.

21 RESIDENT: You didn't answer the question
22 about loss of income.

23 MS. RUSSELL: Well, what I did answer is
24 that the concerns that you have specific to your
25 property such as that would be addressed in -- if we

1 need to access your property, you know, I know they've
2 in the past -- if it's access to farm fields, they've
3 worked around farmers' schedules in the past, so that
4 would be figured out at that point in time directly
5 with you.

6 Any other questions before we take just,
7 again, a quick break? And for those of you who were
8 thinking or want to submit a comment, there's multiple
9 ways to do that. After we get back from this break,
10 if you picked up one of these cards, what I'll do is
11 call out your name and allow you to speak out your
12 comment. We won't, again, be able to respond but
13 again we'll respond to those comments in what we call
14 a responsiveness summary. But when I call out your
15 card number and you provide your comment. A number of
16 other ways in which to do that as well, it just
17 doesn't have to happen here tonight, you have until
18 November 20th to submit your comments to us.

19 We welcome those comments. We need those
20 comments because as Mary pointed out, part of this
21 decision-making process, we have to involve the
22 community members that are going to be directly
23 affected by our decisions. So comments and input from
24 our community and residents who live in these areas is
25 key for us to be making good decisions. So you can

1 submit those comments by November 20th by paper, if
2 you have something written out tonight, myself or
3 Darren can accept that. You can also mail it. We
4 also have a form on our website, and the website is
5 provided in the fact sheet as well as your agenda on
6 the bottom there, and you can submit those. And it's
7 postmarked by November 20th.

8 So with that I'm just going to take a quick
9 break. For those of you who want to stick around for
10 our court reporter to submit those comments, please
11 turn in -- if you have a card, just turn it in to
12 Darren and we will collect those in just a few moments
13 to get started. And I will be starting with number
14 one.

15 (Recess taken at 7:05 p.m.)

16 (Meeting resumes at 7:12 p.m.)

17 MS. RUSSELL: Does anybody here -- just
18 raise your hand if you're going to make a comment to
19 our court reporter, otherwise we can probably close
20 this up and I know there's some reporters here that
21 have some questions for our folks, but going once.

22 RESIDENT: My comment.

23 MS. RUSSELL: Go ahead. Your comment.

24 RESIDENT: I've been attending these
25 get-togethers for -- since they very first started and

1 asking questions and the same questions and pretty
2 much get political talk. You guys are just like
3 politicians. You get, you know, that's your job. You
4 can't give me an answer because you don't -- it's
5 almost like we're not allowed to have a say in it or
6 way back when it started, you know, yeah, hey, I've
7 been on this land for 50 years, test me. Oh, we can't
8 test you, you might be contaminated, you know, so
9 it's -- it seems like it's pulling the wool over our
10 eyes.

11 I, you know, just like the parts per
12 trillion and stuff, I know what mine is, I just want
13 to see my results again, see if I get the same ones
14 back, you know. My bank doesn't erode, well, it does
15 and who knows what's going to happen. I've seen the
16 ice -- I've been up and down the river watching this
17 stuff since it started, and ice damage, you know, and
18 it's -- it's a cover-up. You're covering up this
19 dioxin. You're burying it.

20 I like how the river bank looks, I want mine
21 done like that, you know, that would be my big comment
22 and that it would help the environment. You're going
23 to cap the dioxin that I know I got, you know, but I'm
24 just a little guy with not any say. This community
25 meeting, you know, like I say, I've been to a lot of

1 them.

2 2013 pretty good flood, big berm of sand
3 came in, and somebody from the DEQ, probably your job
4 or, you know, same situation, and I'll come out and
5 take a look at it, you know. And here's this big berm
6 of sand, it's pretty clean looking sand. And I asked
7 him, now is this something that has washed away from
8 the clean-up? And we don't know that, you know. It's
9 not river bottom sand, it's full of sea shells, river
10 bottom sand is. And I said well, is it contaminated?
11 Well, we don't know and it's not worth us testing. I
12 told her the same thing, here, it is, come get it.
13 And oh, no, we don't know it's not even contaminated.
14 I said well, it's okay for me to take this up for the
15 grandkids to play in the sand box, and her eyes got
16 real big. So everyone knows that whatever comes down
17 that river might be but, you know, it's not until we
18 test it so, yeah, I'm torn on are we doing enough
19 testing and are we backing up what we started, you
20 know, that would be my comment. Let's make sure that
21 we're keeping up with it or, you know, monitoring it.
22 Are you going monitor it all the way out into Saginaw
23 Bay, you know? That's all I got. Just blowing off a
24 little steam. Thank you.

25 MS. RUSSELL: Thank you for your comment.

1 Did we have any other folks who wanted to submit a
2 comment tonight for our court reporter? Otherwise we
3 will take those written up until November 20th. Going
4 once, twice.

5 (No response.)

6 I want to say on behalf of Region 5, thank
7 you all so much for taking the time of your evening
8 and coming out here and giving us your feedback and
9 listening to our presentation, and please drive home
10 safely.

11 If you have any questions for us, we're
12 available. The library will be closing up here in
13 about 15 minutes or we need to exit in 15 minutes so
14 we'll have a little bit of availability, but if you
15 need to get ahold of anyone in the project team, our
16 information is on those fact sheets, you can call us,
17 e-mail us, and we will respond to you.

18 Again, thank you.

19

20 (Meeting concluded at 7:16 p.m.)

21

22

23

24

25

1 CERTIFICATE OF REPORTER

2

3 STATE OF MICHIGAN)

4) SS

5 COUNTY OF SAGINAW)

6

7 I, KATHY M. BAASE, certify that this
8 deposition was taken before me on the date
9 hereinbefore set forth; that the foregoing questions
10 and answers were recorded by me stenographically and
11 reduced to computer transcription; that this is a
12 true, full and correct transcript of my stenographic
13 notes so taken; and that I am not related to, nor of
14 counsel to, either party nor interested in the event
15 of this cause.

16

17

18

19

20

21

Kathy M. Baase

22

KATHY M. BAASE, CSR-3285

23

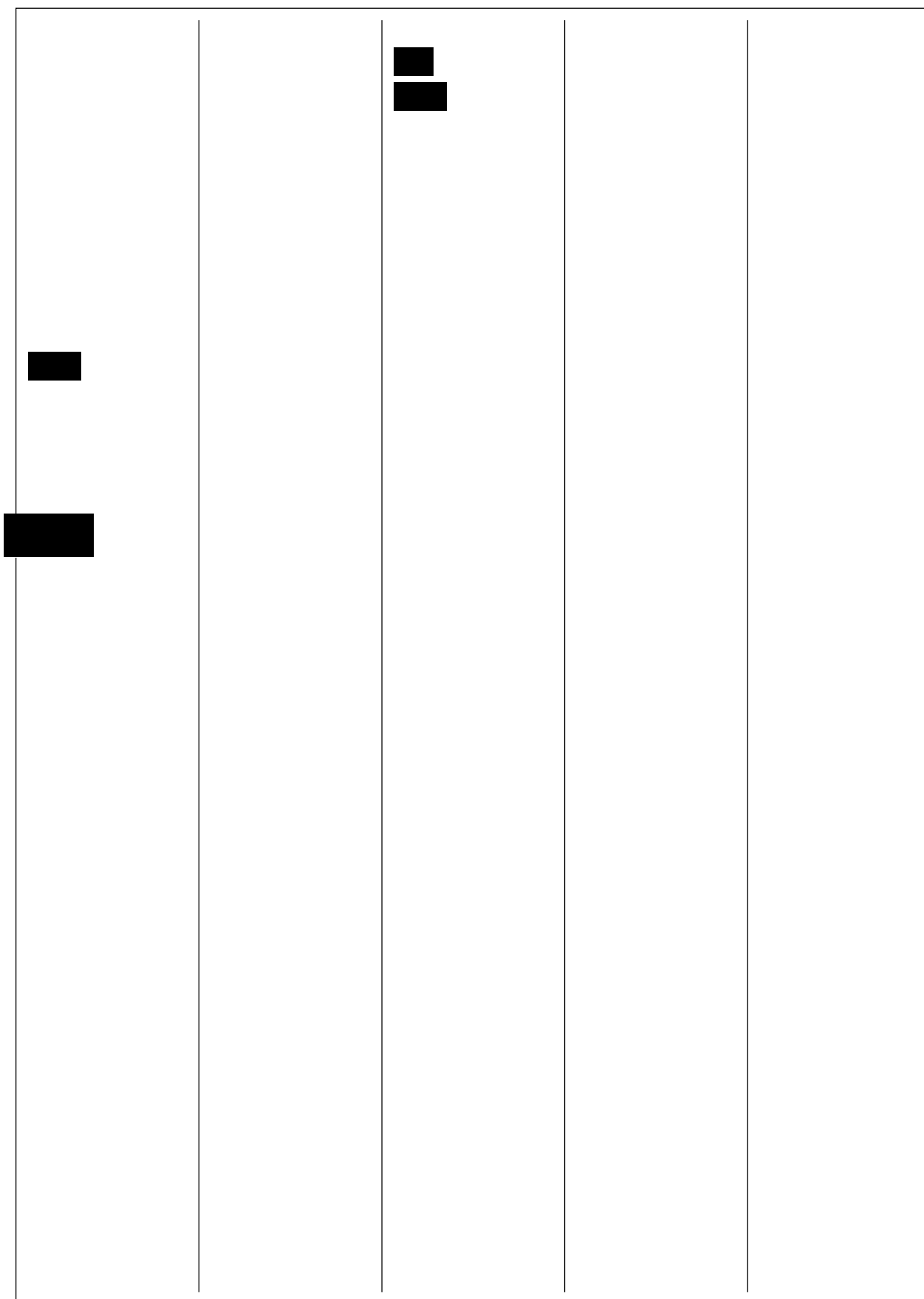
Notary Public,

24

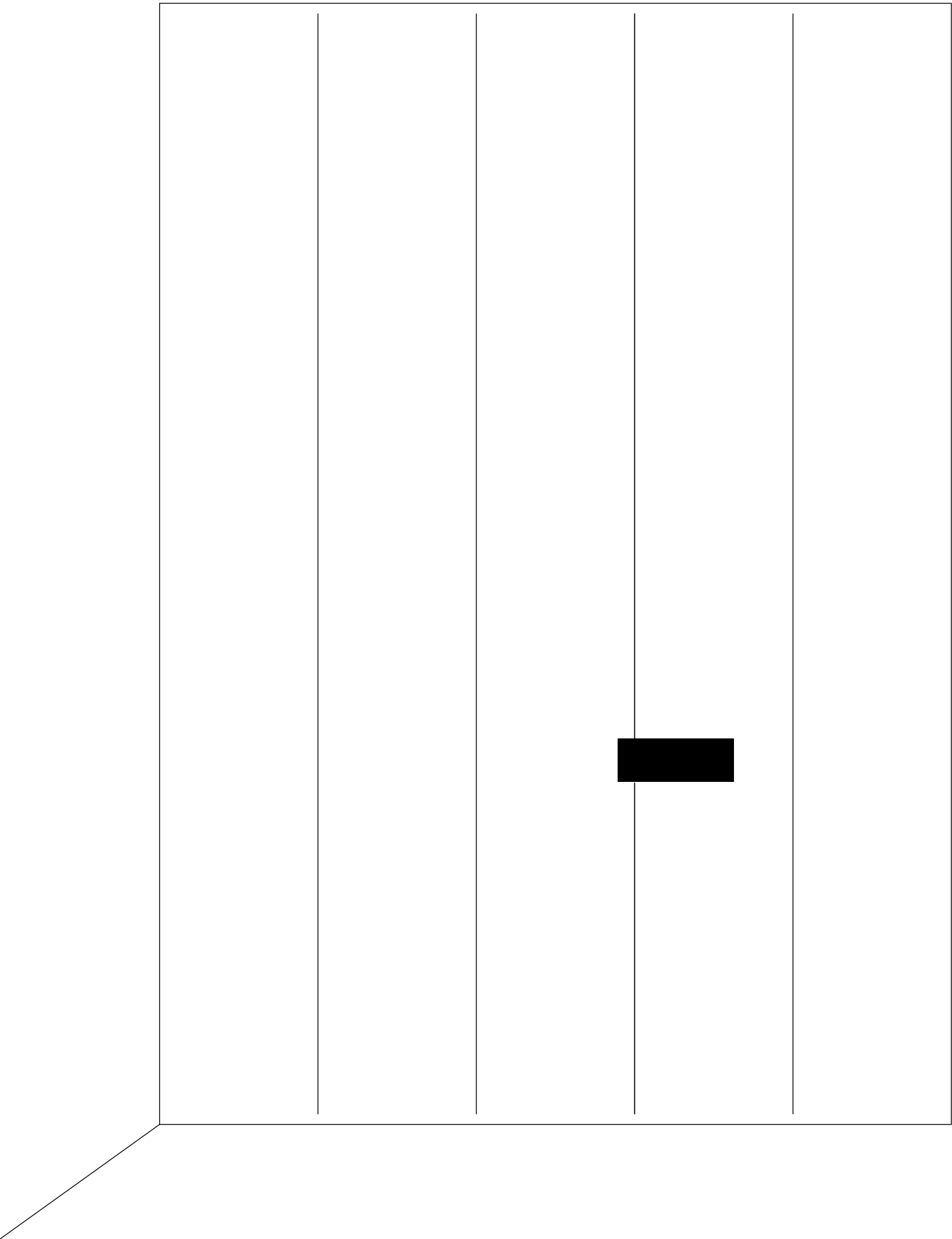
Saginaw County, Michigan

25

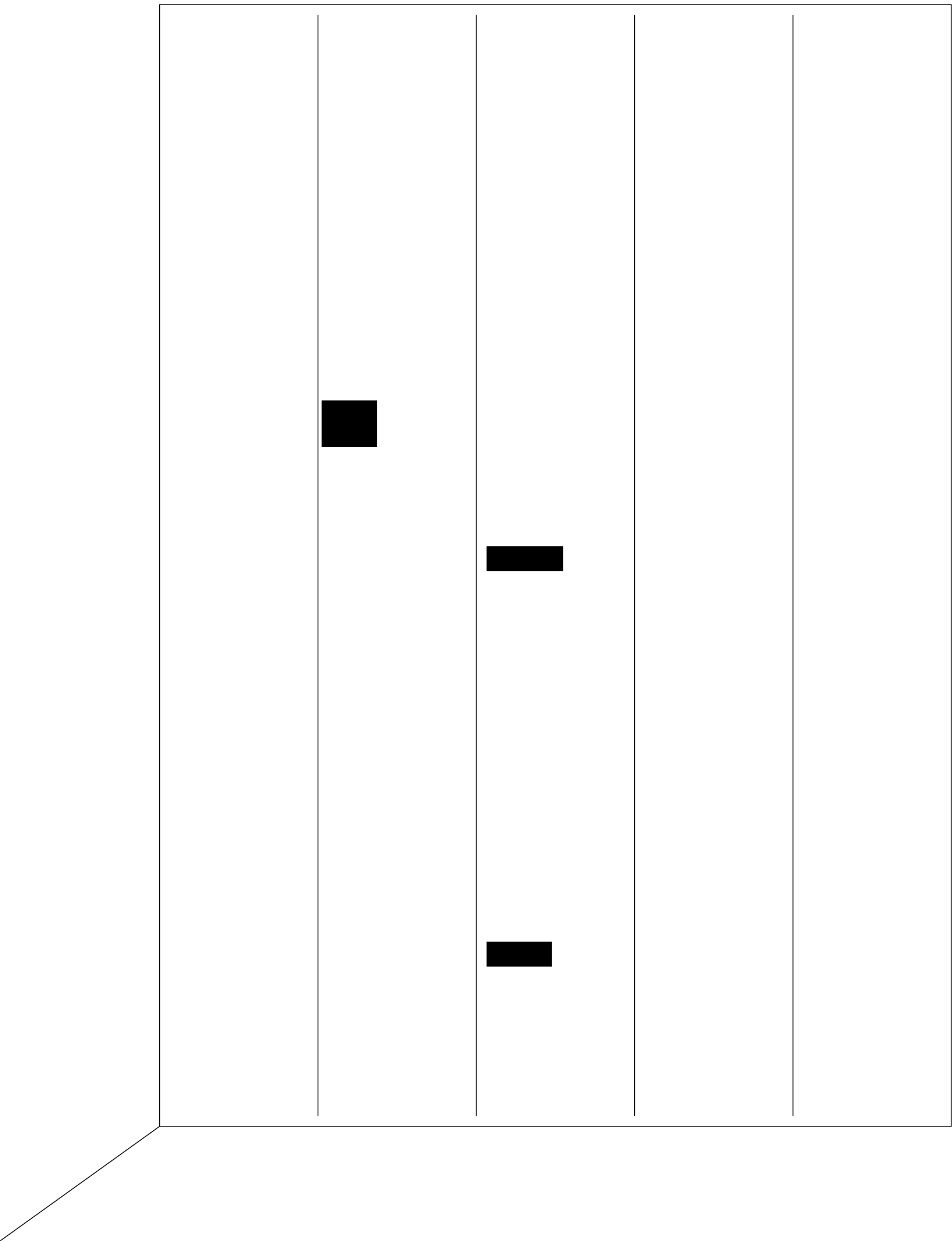
My Commission expires: January 10, 2024

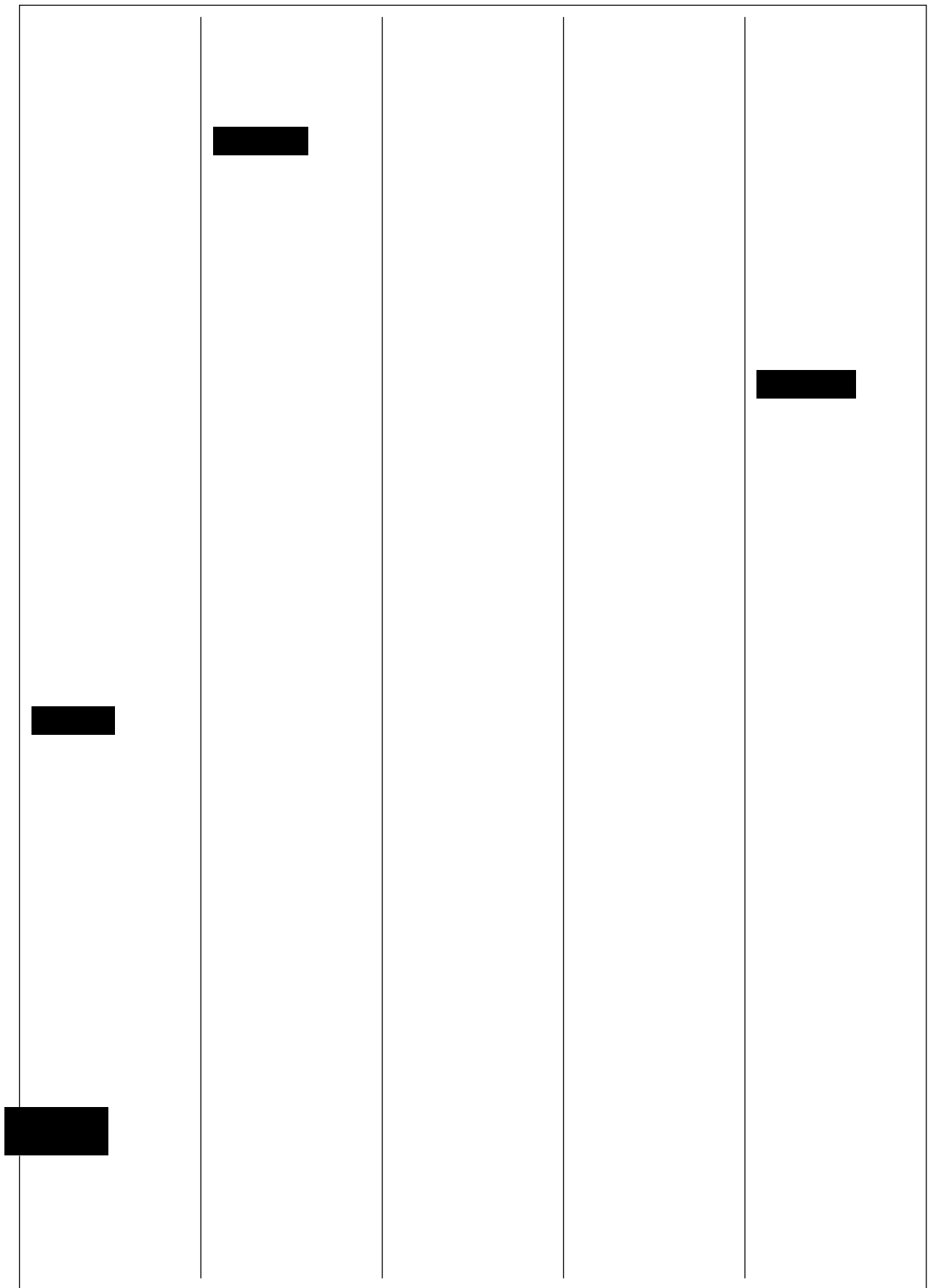


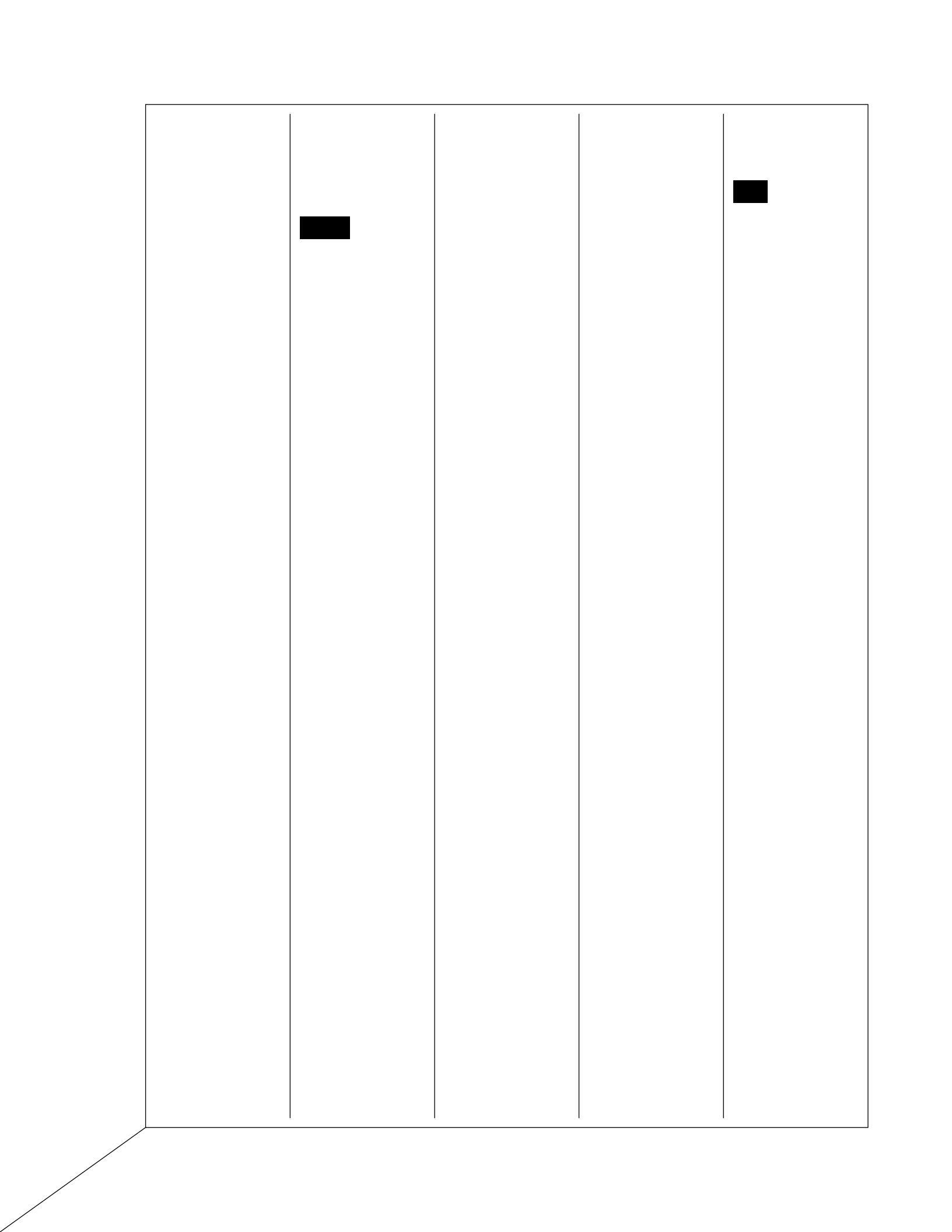
backing 35:4	beneficial 7:5	49:22	Center 6:9	clean-ups
backwash	berm 41:7	building 8:25	42:7,22	30:17,21 43:9,10
21:8	betrayed 27:21	49:19	century 26:17,	cleaned 41:12,
backyard 34:1	big 18:8,16	built 22:13	21	17 42:1 43:16
36:4 46:3,5,15	25:18 31:7 38:2	25:17 26:22 31:5	certification	48:2
47:15	47:11	bunch 4:21	51:12	cleaning 8:22
backyards	bio-	38:6	challenging	43:2,4
46:2	accumulation	buried 17:23	18:10 20:19	cleans 42:7
bad 27:21	9:1	19:10,12 21:6	21:10,14,16	clear 32:24
baffling 39:4	biological 7:1	38:19	change 10:2	44:17 48:22
balance 22:10	Birch 50:14	bury 37:18	23:11,12	climate 45:23
bank 5:14,19	51:2,5	burying 37:12,	channel 18:18	close 41:22
7:4,24 8:16,22	bit 6:5,22 8:5	13 38:17	19:8,17 20:9	closer 20:22
9:6,16,19,21	12:13 19:13 20:1,		21:5,13,15	closes 23:10
10:3,5,22 11:10,	15,17 40:24		channels	cloud 40:4
17,24 12:2,11	blankets 10:25		37:16	collect 3:6
31:3,4,6 32:5	blocks 31:6		characteristic	colors 18:25
39:2 41:6 47:17	blue 19:2		s 39:13	23:24
48:2,6,8,18 49:25	BMA 31:3,10		chemical 6:23	combination
banked 32:3	BMAS 5:15		7:11 28:16	5:25 17:10 21:20
banks 5:21,23	boat 15:21 42:8,		chemicals	32:4
6:23,25 7:17,18	17,23		7:11,14 45:21	combine 40:4
8:1 9:8,9 10:6,17,	Bob 25:11,12		children 27:10	combined
19,24 11:5,8	books 28:15		47:13	20:18
12:18,20,22 13:2	born 27:4		Chippewa	comfortable
21:20 22:17 29:5	bottom 6:14		4:23	32:8
31:15,17,21	14:20 24:1 31:7		choice 27:15	commences
32:13 37:16	35:9		choose 49:22	20:7
bar 19:15 38:20	Boulevard		chunks 31:7	comment
barn 25:18	41:21 42:19 44:6		cinder 31:6	22:22,24 23:1,7,9
bars 18:2	bow 27:9		City 50:13	24:13,19 46:13
based 23:12	Brasseur		clean 8:21 9:3,	50:2
45:11,20 47:12	28:22		8,9 13:18 28:1,5,	comments 3:7
49:23	break 3:5,8		19 29:6 33:22	22:23 23:1,4,11,
basic 37:12,14	24:12		34:3 35:13 42:10,	13 24:14,15,17
45:24	breather 13:10		14 43:5,24	Commission
basically	bridge 20:10,11		clean-up 5:16,	28:12
15:14	brochures		17 7:21 8:13,15	committed
Bay 5:4 27:18	23:19		9:7 21:18 22:21,	34:20
beans 34:11	brought 28:14		24 29:8,12,13	community
beautiful 17:19	build 33:10		30:11,16 31:22	3:14,18 12:24
begin 23:15			34:1,9,21,25	25:1,2,6
behave 45:22			41:2,13 42:4	compare 17:2
			44:8,20 45:4,8	
			46:10,14,18,20,	
			24 47:22,24	

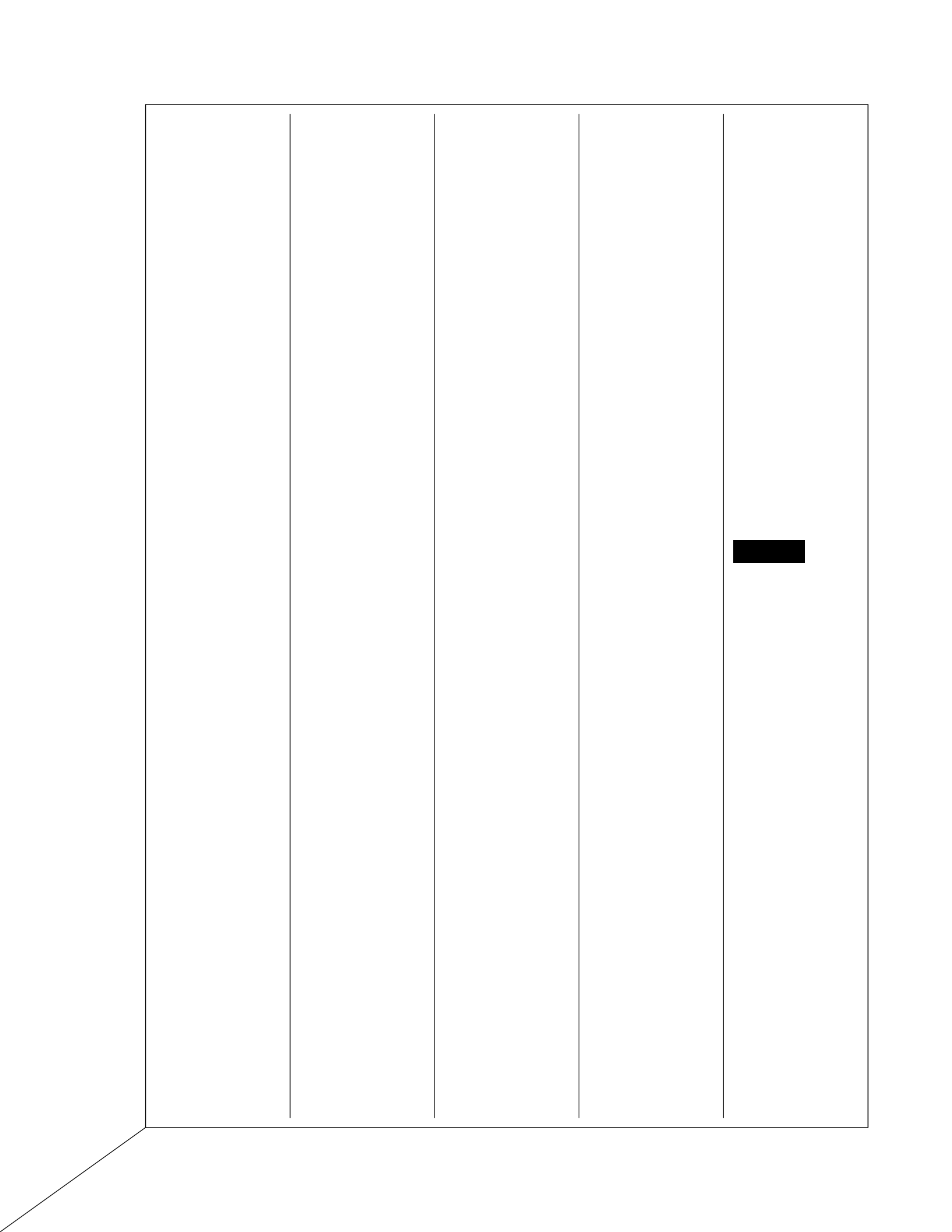


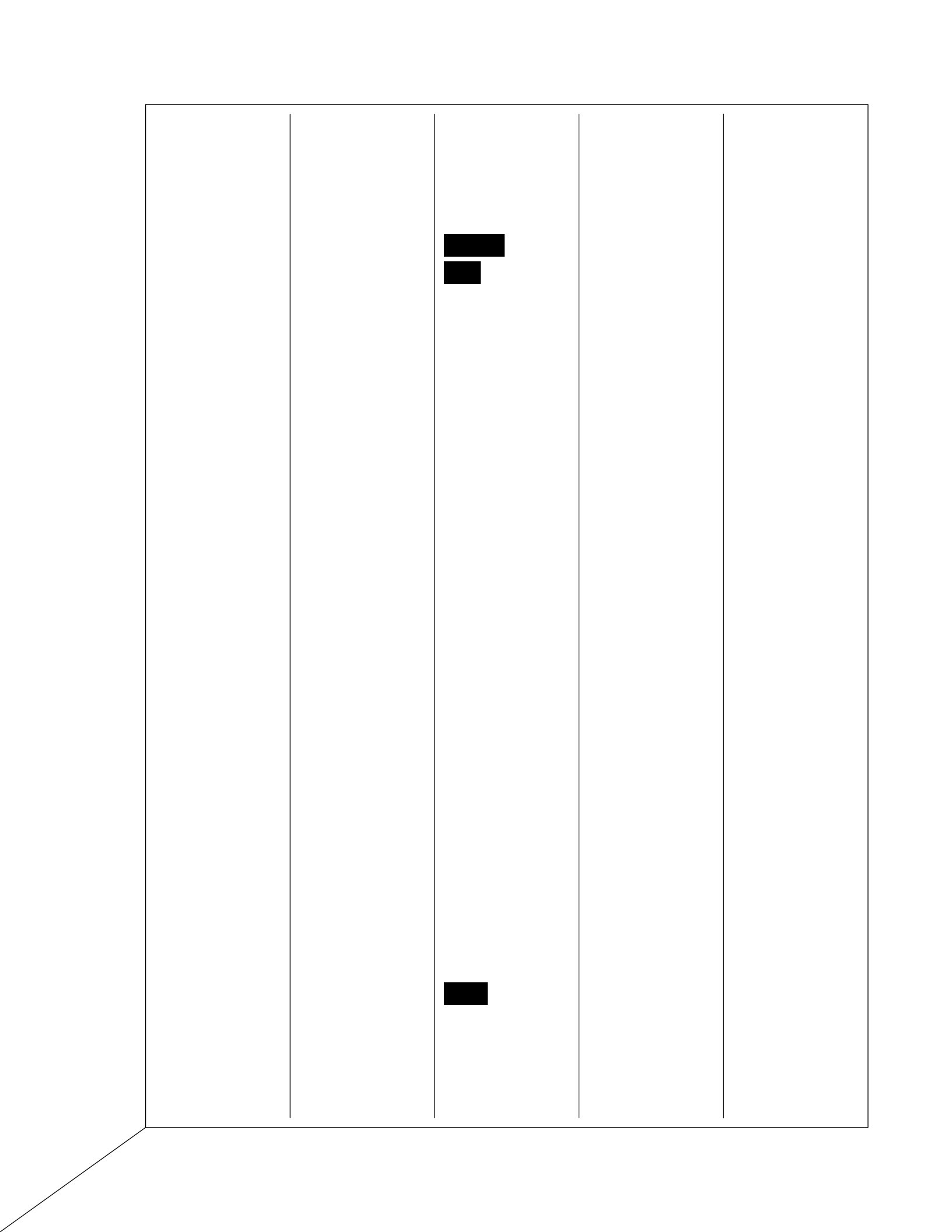
[illegible]











<p>sir 28:8 32:14 35:1 36:22 43:20 48:15 50:8 51:14</p> <p>sister 27:4</p> <p>site 4:19 5:1 7:1 26:14 44:25 45:2, 11,12,15,17,19, 25 49:4</p> <p>sites 25:24 27:19</p> <p>situation 14:5 30:10,12 39:23</p> <p>size 8:4</p> <p>slides 4:12,14, 21 10:20</p> <p>slope 9:21</p> <p>sloped 12:3</p> <p>slow 14:9</p> <p>SMA 19:6</p> <p>small 21:12 23:23 47:13</p> <p>SMAS 5:16</p> <p>smell 29:24</p> <p>soil 9:13,16 27:2 34:2,3 45:6,9</p> <p>soils 8:22 51:10</p> <p>sounds 4:12 9:20 13:24</p> <p>source 26:6,8, 15 48:7,12</p> <p>sources 8:23 9:4 51:1</p> <p>South 6:9</p> <p>southern 21:13</p> <p>specific 5:14 7:20 44:25 45:2, 11,12,23,25 51:24</p> <p>specifically 37:9 45:15 46:8 49:4</p>	<p>speed 25:5</p> <p>spell 3:1</p> <p>spend 18:20</p> <p>splits 20:6</p> <p>sportsman 51:15,18</p> <p>spot's 40:6</p> <p>St 39:5</p> <p>stability 6:24 17:25</p> <p>stabilization 9:10,14,15,25 10:9 12:13,18 21:20 49:25</p> <p>stabilize 5:21 9:12 10:24 12:22 13:22 19:14 48:10</p> <p>stabilized 10:19 22:18 26:1</p> <p>stabilizes 10:21</p> <p>stabilizing 37:15</p> <p>stable 7:18 9:16 18:1,2 20:23 21:8 38:20</p> <p>stage 10:20</p> <p>staging 18:16 20:23</p> <p>standards 45:5,6</p> <p>start 3:7 5:17 30:7 31:7 49:19</p> <p>started 4:6 25:14 41:3 43:6</p> <p>state 3:1,23 6:8 24:10 26:11 30:18 42:12 50:19,23</p> <p>statements 26:24</p> <p>statewide 44:2</p>	<p>stays 44:17</p> <p>stenographer 28:17</p> <p>step 23:9 42:16</p> <p>stirred 16:9 41:4</p> <p>stone 15:2</p> <p>storm 38:23</p> <p>stretched 15:15</p> <p>stringent 26:12</p> <p>stripped 39:6</p> <p>striving 23:20</p> <p>structure 11:18</p> <p>studied 27:3</p> <p>studies 7:1,6</p> <p>study 42:2</p> <p>stuff 16:9 35:12, 15,16 50:9</p> <p>sub-categories 21:23</p> <p>sub-set 41:13</p> <p>submit 50:2</p> <p>substance 27:3</p> <p>Substances 30:19</p> <p>successful 23:22</p> <p>suffer 27:11</p> <p>summary 24:18</p> <p>Summers 25:1</p> <p>Superfund 4:19 5:1 27:15</p> <p>surface 14:11 20:22 25:25</p> <p>surveys 7:4</p>	<p>system 5:23 7:16 8:24 9:3,5 13:21</p> <p>systematic 5:12</p> <hr/> <p>T</p> <hr/> <p>table 17:2</p> <p>takes 10:11,21 11:11 50:17,18</p> <p>taking 4:11 9:15 13:24 43:19</p> <p>talk 4:13 5:13 6:1,19 7:13 9:6 13:11 15:9 18:7, 12 25:7 26:6 36:20 49:11 50:5</p> <p>talker 4:13</p> <p>talking 4:6 7:13 15:13 29:14 33:24 34:23 39:18,25 40:3,19, 20 41:8,18,23 45:18 47:3,20</p> <p>tall 31:4</p> <p>targeted 7:21</p> <p>targeting 8:1</p> <p>Task 27:8</p> <p>taxes 48:20</p> <p>Taylor 28:13</p> <p>team 49:5</p> <p>technical 18:20 49:5</p> <p>techniques 10:22</p> <p>technologies 6:2 9:9,25 10:23 13:15 18:15</p> <p>technology 9:9,18 11:9</p> <p>telling 40:6</p> <p>tells 40:12</p>	<p>temporary 15:7 38:17</p> <p>term 10:10,15 13:1,3,4 14:24 21:25 22:11,12, 20</p> <p>terms 16:17 22:8 26:13</p> <p>terrible 29:25</p> <p>test 42:13,19</p> <p>testing 36:23</p> <p>tests 37:1</p> <p>thing 15:24 24:7 37:12,14 48:21</p> <p>things 15:3 37:17 49:16</p> <p>thought 17:13</p> <p>thumbs 6:12</p> <p>time 3:3 4:2,11, 18 6:20 18:21 23:25 24:15 27:13 30:7 34:23 36:11,19 40:23 42:13,17,20 43:5 44:10</p> <p>times 21:19 28:14 35:9,16</p> <p>tip 31:12</p> <p>tissue 7:2</p> <p>Tittabawasse e 4:22,23,25 5:2, 6,7,8 14:19 15:3, 5 20:6,8,17 25:18 27:5 40:22 45:18 51:16</p> <p>today 3:17</p> <p>tonight 3:12,22 4:10 6:21 23:2,4 24:16 29:4,14 33:24 37:15 41:8 46:13 47:23 49:18,21,25</p> <p>top 19:1,3,5 31:6,8</p>
--	--	--	---	--

total 7:25 touch 10:16 touches 39:16 Toxic 30:19 toxicologists 45:7 trade-off 13:2 transcribed 23:4 transported 9:1 treat 45:3 treated 40:8 trees 12:6,7,8 trend 44:10 tricky 6:12,13 triggering 31:22 triggers 34:1 trillion 43:23,25 44:10 47:5,8 trouble 27:16 trucks 16:16 Trump 27:14 type 23:25 51:13 typical 46:15 typically 9:13 16:19 <hr/> U <hr/> Uh-huh 28:7 ultimately 11:4 15:16 unacceptable 25:21 26:3 uncertainties 11:11 undergone 18:3	underlying 13:22 understand 25:22 42:5 45:8 understandin 18:24 g 18:24 unintended 11:18 unit 36:7 upland 16:14 upper 6:10 upriver 20:24 22:16 upstream 5:11 6:7 15:21 38:5 41:18,24 42:6 users 18:11 <hr/> V <hr/> vegetation 7:3,5 9:11 10:4,7, 11,22 11:5 14:20, 22 vegetative 9:12 versus 45:19 46:5 Victre 3:22 voluntary 33:1,4 <hr/> W <hr/> Wagner 35:5 walk 29:24 37:19 wall 16:20 Wallace 28:23 35:5,8 wanted 3:6 8:10 23:19 29:21 30:1 35:25 51:19	warranted 32:3 wash 39:24 washes 39:23, 24 waste 25:20 26:13 50:24 51:13 watching 50:24 water 11:20 15:6 16:10,15,21, 23,25 19:1,3,5 21:2 26:12,14 27:2 39:16,19 44:22 45:6 51:18 waters 42:3 ways 12:4 21:17 weedy 10:5 week 39:8 weighs 6:18 West 8:12 41:22 43:10 44:6 45:12 wet 14:1 16:13, 17 wide 7:1 Wildlife 6:16 8:18,20 17:17 20:3 21:1 winter 11:3 wishes 27:9 wondering 48:17 49:1 wooded 12:5 work 3:15 4:15 8:16 10:11 19:18 22:4,8,16 23:10, 15 30:20,21 32:7 33:11 38:21,24 39:17 40:14 41:21,24 45:7 48:18 49:6 workers 18:11	working 4:19 19:19 30:17 36:5 works 3:18 4:20 worst 29:23 write 23:5 written 23:1 24:16 wrong 35:3 <hr/> Y <hr/> yard 32:22 36:3 40:1 yards 46:1 year 11:1,3 23:21 34:11 35:9, 11,17 36:12,15 39:23 41:6 42:3, 22 43:3,13 47:18 years 10:12 23:17 28:6 34:14 36:24 38:19 41:3, 15 43:22 44:12 49:2 yellow 19:4 young 12:9 <hr/> Z <hr/> zooming 20:15
--	---	---	--